ABSTRACT

The present invention provides a technique by which highly detailed gene expression profiling data for analyzing the gene function can be obtained safely and conveniently. It is a versatile non-destructive and high-resolution visualizing technique by which expression levels of genes can be monitored in real time, and which can be applied in vivo and to deep tissues. For instance, plasmids in which molecules that vary the NMR signal and can be quantified by PHM genes are incorporated downstream from promoters responding to the condition of medium, external stimuli and the like, are introduced into the cells. The level of polyphosphate in deep tissues and the like can then be quantified by ^{31}P-NMR, allowing expression profiling of the promoter, both non-destructively and in real time.